

# Benchmarking Transport Infrastructure Construction Costs WP.5/GE.4 railway perspective

*WP.5, 35<sup>th</sup> session*  
*Geneva, 7 September 2021*



# Contribution of the railway part

**Polish National Rail Infrastructure Manager (PKP PLK S.A.) – leader**

Data from:

**Individual states:** Bulgaria, Croatia, Finland, Poland, Serbia, Slovenia, Türkiye

**ECO members:** Azerbaijan, Kazakhstan, Tajikistan, Turkmenistan

**TER members:** Armenia, Austria, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Poland, Romania, the Russian Federation, Serbia, Slovakia, Slovenia, Türkiye



# Railway input

- Terminology
- National approach in benchmarking infrastructure construction costs
- Analysis of rail data



# Railway terminology

**85 definitions**

**type of lines, elements of infrastructure, railway systems, type of works etc.**



# National approach in benchmarking infrastructure construction costs

Polish case – calculation of the planned cost of construction work based on the index method as the sum of the products of the price index and the number of reference units

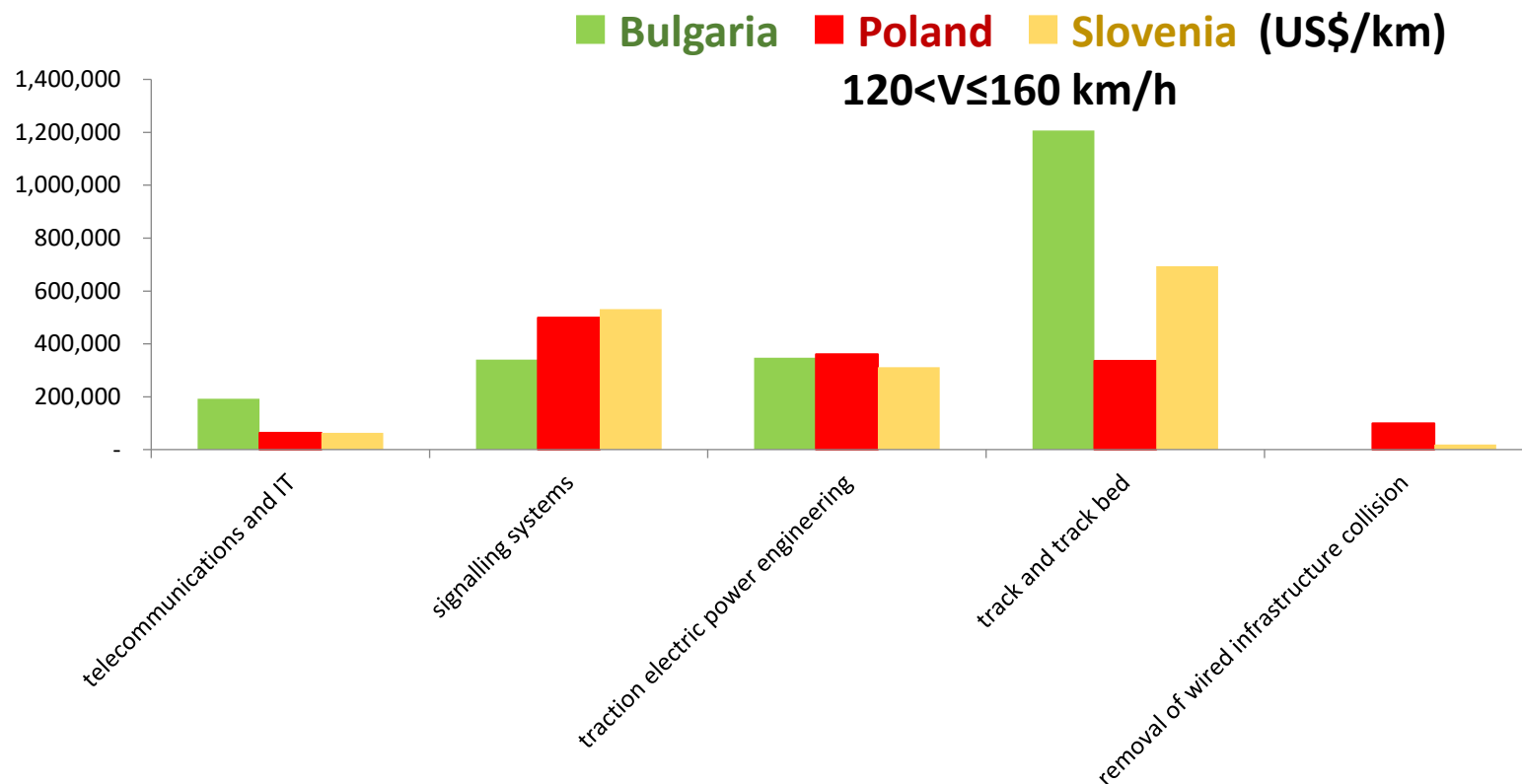


# Analysis of rail data – individual states

Example: Cost of infrastructure elements for upgrade in Bulgaria, Poland and Slovenia

			120<V≤160 km/h	120<V≤160 km/h	120<V≤160 km/h
	telecommunications and IT	US\$/km	192 250 58	63 526 23	63 840 00
	signalling systems	US\$/km	340 876 53	499 797 28	532 000 00
	traction electric power engineering	US\$/km	347 610 33	360 827 30	311 982 89
	track and track bed	US\$/km	1 207 548 78	336 262 65	693 685 44
	removal of wired infrastructure collision	US\$/km		99 577 86	20 121 30
	railway infrastructure in ports and terminals	US\$/m	477 54		-
	reinforced concrete bridges	US\$/m	13 431 79	22 345 58	14 672 56
	single tube tunnels	US\$/m	17 230 11		-
	twin tube tunnels	US\$/m	20 691 60		-
	railway stations (excluding facilities for train operations)	US\$/m <sup>2</sup>	523 37		159 60
	one-sided turnouts	US\$/unit	39 769 62	86 755 14	112 072 18
	elevators	US\$/unit	65 463 61	59 202 36	28 196 00
	escalators	US\$/unit	94 132 93	220 025 51	59 392 48
	other overpasses	US\$/unit	1 630 081 13		

# Analysis of rail data – individual states



# Analysis of rail data – ECO members

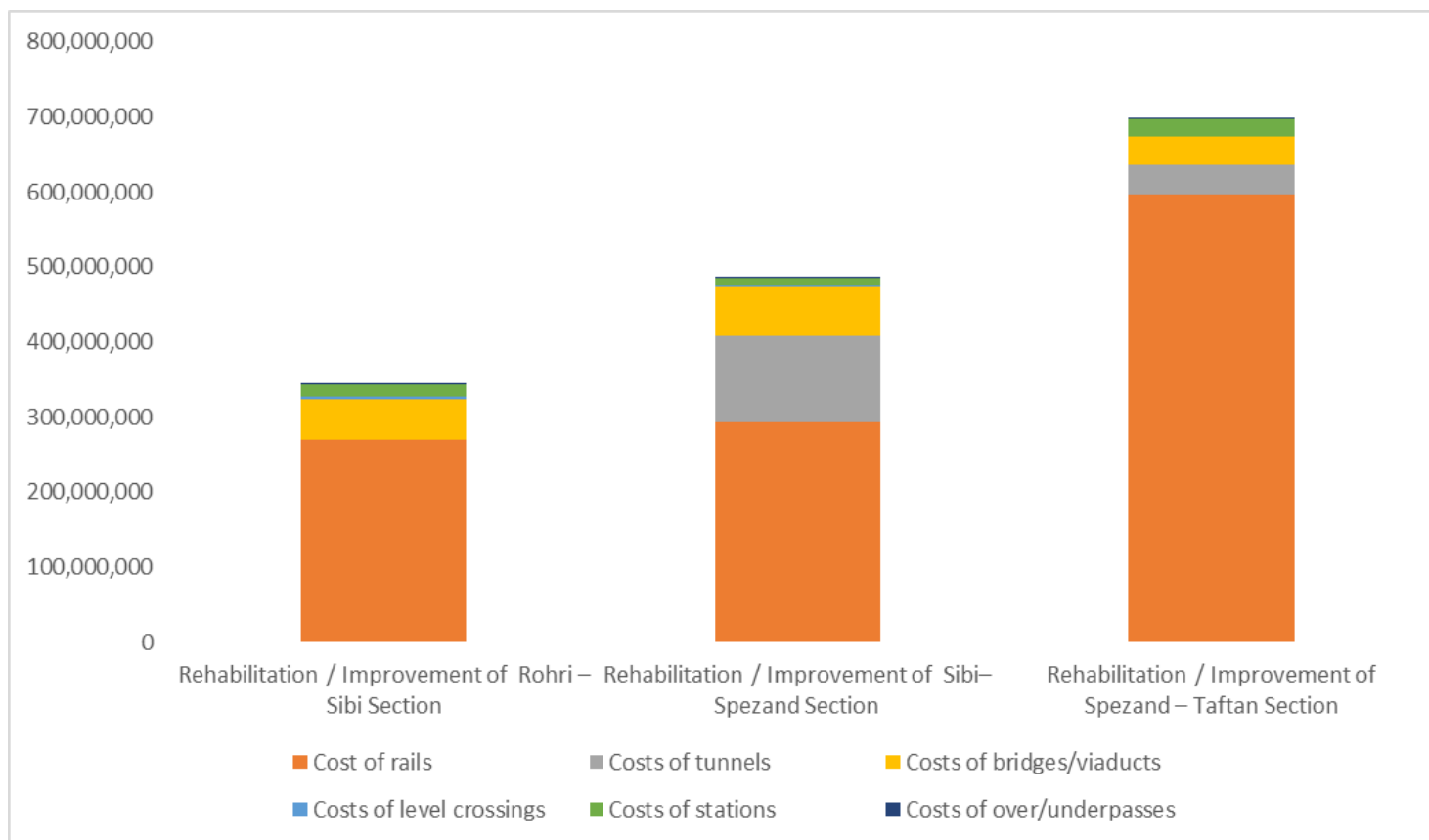
## Example: Cost of projects implemented in Tajikistan

Project	Construction costs of the project	Cost of rails	Costs of tunnels	Costs of bridges/viaducts	Costs of level crossings	Costs of stations	Costs of over/underpasses	Total length of the project in km	Length of the project excluding tunnels and bridges/viaducts in km	Length of tunnels in km	Length of bridges/viaducts in km
Rehabilitation / Improvement of Rohri – Sibi Section	345 000 000	269 000 000	0	54 000 000	5 000 000	15 000 000	2 000 000	239,190	231,730	0	7,460
Rehabilitation / Improvement of Sibi– Spezand Section	486 000 000	293 900 000	114 000 000	67 000 000	600 000	9 000 000	1 500 000	116,340	83,149	22,652	10,539
Rehabilitation / Improvement of Spezand – Taftan Section	698 000 000	596 500 000	40 000 000	37 000 000	1 000 000	22 000 000	1 500 000	638,690	628,030	4,855	5,805





# Analysis of rail data – ECO members



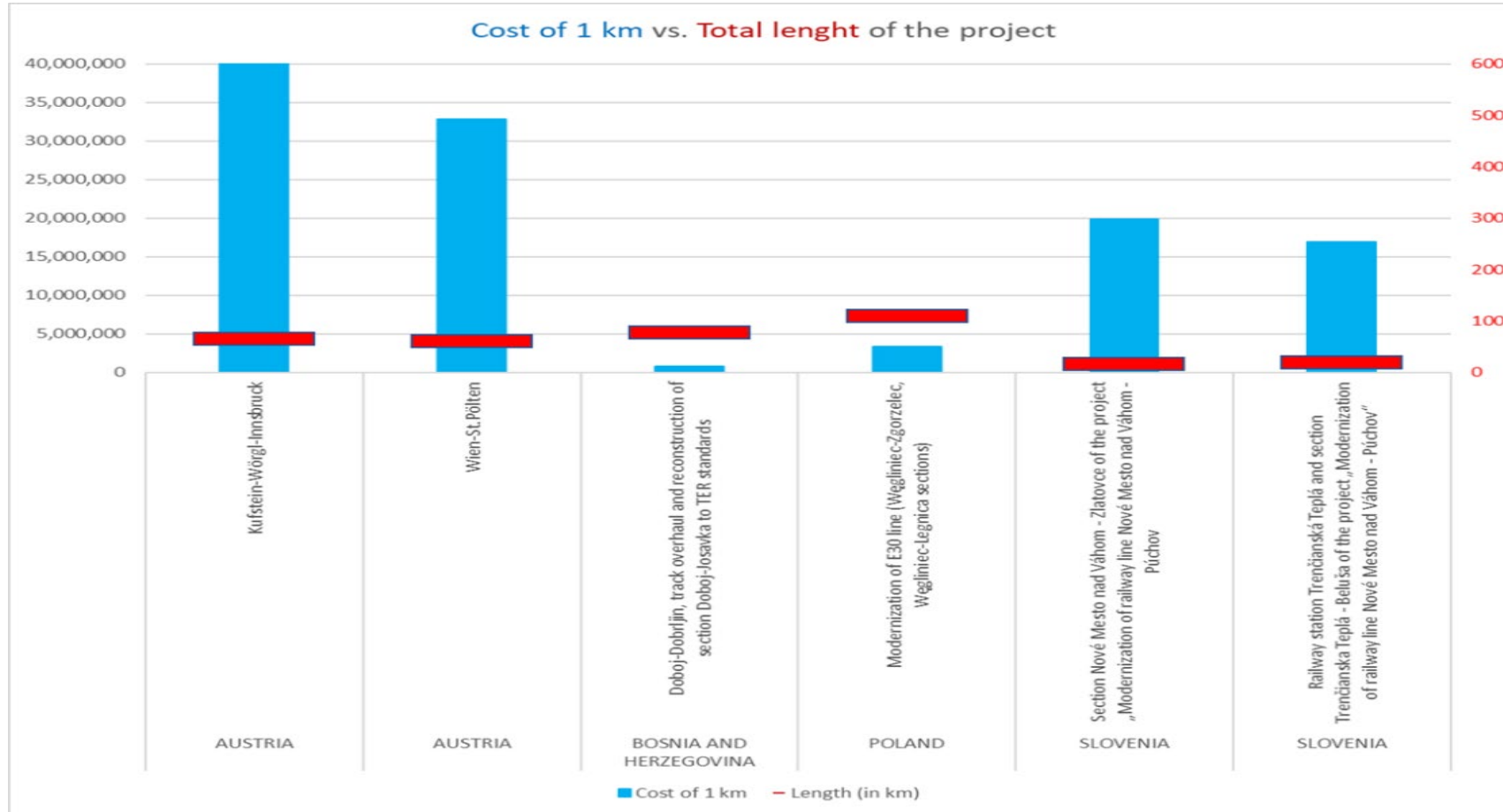
# Analysis of rail data – TER members

Example: Cost of projects put into operation by TER states

Country	Project description	Length (in km)	Construction cost in USD	Cost of 1 km
AUSTRIA	Kufstein-Wörgl-Innsbruck	65,00	3 053 300 000,00	46 973 846,15
AUSTRIA	Wien-St.Pölten	61,00	2 000 393 600,00	32 793 337,70
AND HERZE	Doboj-Dobrljin, track overhaul and reconstruction of section Doboj-Josavka to TER standards	78,00	64 280 000,00	824 102,56
POLAND	Modernization of E30 line (Węglińiec-Zgorzelec, Węglińiec-Legnica sections)	110,00	366 396 000,00	3 330 872,73
SLOVENIA	Section Nové Mesto nad Váhom - Zlatovce of the project „Modernization of railway line Nové Mesto nad Váhom - Púchov	17,00	338 112 800,00	19 888 988,24
SLOVENIA	Railway station Trenčianská Teplá and section Trenčianska Teplá - Beluša of the project „Modernization of railway line Nové Mesto nad Váhom - Púchov“	20,00	338 112 800,00	16 905 640,00



# Analysis of rail data – TER members



Thank you for your attention

